DG-100 (ELAN)

additional manual pages needed for older gliders in addition to the current manual DG-100 ELAN

page	needed for serial No. DG-100	DG-100 ELAN
cover	all	/
conc. hinged canopy	"	up to E57
17	up to 103	/
24 (April 1975)	"	/
24 (April 1979)	104, 105	E1 - E57
Diagr. 2	all	up to E57
" 10	"	up to E57

no amendments for these pages

Flight Manual and Service Manual
for sailplane type

DG-100

Type Certificate Data Sheet No. G-- E.U
German Sailplane Data Sheet No. 301

No.:

Registration No.:

Manufacturer: Glaser-Dirks Flugzeugbau GmbH
7520 Bruchsal 4,
Im Schollengarten 19 - 20
West Germany
Telephone: 07257/1071

Owner: .....

.....

This flight handbook is to be carried in the sailplane.

Date of issue: 21. April 1975

Pages 1 through 17 and diagrams 2, 4, 5 and 6 of the original German Language "Flug- und Betriebshandbuch DG-100" have been approved by Luftfahrt-Bundesamt.

4.11 Water Ballast

One 4o kg or 5o kg PVC water tank in each wing. Dump is accomplished thru a central valve in the fuselage and out of an opening behind the main gear. On the ground each wing can be drained individually by lowering the opposite wing. The dump rate in flight is about one quart per second so the amount remaining can be easily controlled.

Filling the Tanks

Close dump valve and lower a wing. Connect the supplied clear plastic tube. Fill ballast tank while observing tube. After the tank is full (as indicated by the sight tube), raise the wing and drain the water remaining in the tube. Remove the fill tube and connect hose to dump valve. Repeat for other wing. After loading ballast, level wings and check for inbalance. Correct imbalance by draining the required amount from the heavy wing.

The PVC connections should be lubed occasionally to prevent binding.

Precautions Concerning Flight with Ballast

Ambient temperatures of less than 0° C. could cause the water to freeze so dump ballast prior to encountering these conditions. Ballast raises the landing speed and increases the landing roll. It is, therefore, recommended that ballast be dumped before landing off-field.

Dump immediately in case of leak.

Maximum allowable ballast is determined by use of diagram 5

6.5 Removal of Ballast Tanks

At the wing root near the main spar you will find a cord. Attach another cord of strong synthetics about 3 mm in diameter and 5 meter in length. Loosen the 4 machine screws in the FRP cover plate. Carefully withdraw tank. Remove cords from tank and attach to new tank. Pull new tank into place with cord.
Replace FRP cover plate. Secure plate and cord with bolts. Test system.

6.6 Repair of Damage

Before every flight and especially after a period of non-use, a thorough ground check should be carried out. Visually check the surface for small depressions, bubbles, and other unevenness. This could be a signal that something is not right.

Contact the manufacturer immediately and, if possible, send a photo of the damage and a report by a licensed airframe mechanic. The manufacturer will be able to supply the correct advice and a repair program saving you the time and troubles of quesswork and bad tries.

Minor surface damage such as scratches, gouges, and cracks in the finish may be repaired by a licensed airframe mechanic, (See also page 31). Knowledgeable advice can also be found in the Petite Plane Patch Primer. A list of materials for the DG-1oo and a check list for post-accident inspection is found on pages 27 - 29.

Repairs by the owner should not be attempted if:
the spar flange is damaged.
the main fittings on the wings, fuselage, or tail are torn out or if in the immediate vicinity there are white areas in the laminations.
the parts are torn in such a way as to make repairs uncertain without the use of jigs or appliances.
the damage is so extensive that the original shape or contour is obscured.
Cut away undamaged areas as necessary to gain access to damaged areas.

6.5 Removal of Ballast Tanks

Tie a piece of nylon cord (3 mm) diameter and at least (5 m) long, to the nylon cord sticking out of the wing root rib. Remove the three allen key screws securing the dump valve. Pull the tank and valve out carefully. Unknot the tank, tie on the new tank and pull it into place. Screw the valve and cover plate in place. Check for waterthightness.

6.6 Repair of Damage

Before every flight and especially after a period of non-use, a thorough ground check should be carried out. Visually check the surface for small depressions, bubbles, and other une veness. This could be a signal that something is not right.

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the main fittings on the wings, fuselage, or tail are torn out or if in the immediate vicinity there are white areas in the laminations.
the parts are torn in such a way as to make repairs uncertain without the use of jigs or appliances.
the damage is so extensive that the original shape or contour is obscured.
Cut away undamaged areas as necessary to gain access to damaged areas.

Diagram 2

DG - 100 empty weight C.G. range dependant upon empty weight and pilot weight

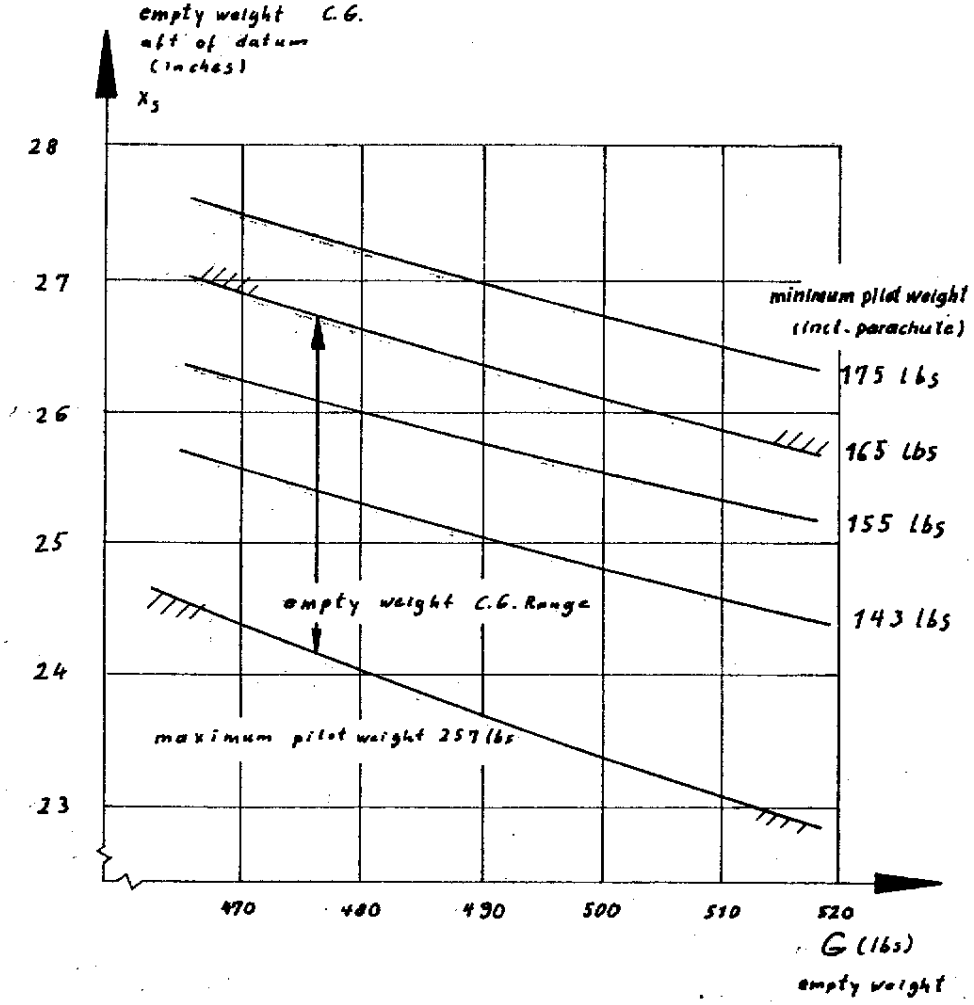
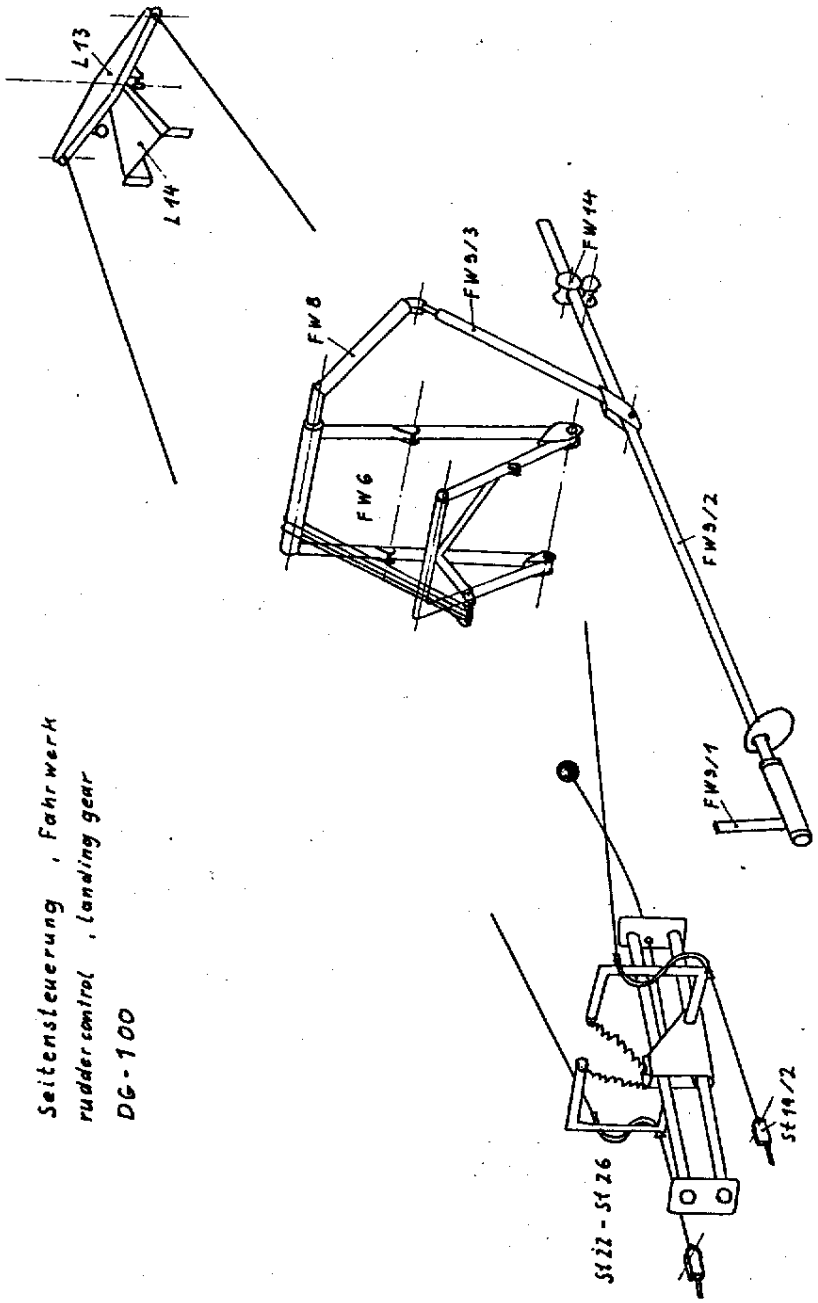


Diagramm 10



Seitensteuerung , Fahrwerk
rudder control , landing gear
DG-100

21.4.79

Flight Manual and Service Manual
for sailplane type

DG - 1oo ELAN

Type Certificate Data Sheet No. G-- E.U
German Sailplane Data Sheet No. 3o1

No.: _____

Registration No.: _____

Manufacturer: ELAN
Toverna Spotnega Orodja
64 275 Begunje/Gor.
Jugoslawien
Tel.: 003864/75010

Owner: .....

.....

This flight handbook is to be carried in the sailplane.

Date of issue: April 1979

Pages 1 through 17 and diagrams 2, 4, 5 and 6 of the original German Language "Flug- und Betriebshandbuch DG-1oo" have been approved by Luftfahrt-Bundesamt.

Concerning: DG-1oo and DG-1oo G with hinged canopy

Dear Sir!

One of our customers made the experience that the opened canopy has the effect of a burning class when the sun shine is strong.

Especially the leatherette parts might be heated to much. We recommend to keep the canopy closed or to cover it with a cloth.

Please file this page after the first page of your DG-1oo flight and service manual.

Yours sincerely

W. Oschmann

Bruchsal 4, 2,o3.1977

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1	Maint.-m. Diagr.2, 10	Seat, landing gear, aileron control stops	19.09.80	
2	Maint.-m. p.18, 24	Waterballast system	24.09.80	
3	Maint.-m. p.18	Main pin securing	24.09.80	
4	Flight-m. p.9a	Single piece canopy	24.09.80	
5	Flight-m. p.4, 5, 6, 11, 13, 14, 15, 16	SI-units	01.06.82	
6	Content p.1a Service-m. p.37, 38	Increase of service time (TN 301/11)	May 1985	
7	Service-m. p.23, 26	Emergency release of the one piece canopy (TN 301/12)	May 1985	
8	Service-m. p.29, 35, 36	Amendments TN 301/13	May 1985	
9	Flight-m. p.7, 9a, diagr.6a	Marking of canopy emergency release and ventilation (TN 301/14)	June 1986	
10	Service-m. p. 23a	Airbrakes (TN 301/18)	Oct. 1996	
11	Flight-m. p. 3, 11	Installation of an additional tow hook TN 301/19	March 1998	

1 Brief Description

Single-seat, high performance, Standard Class sailplane.

Construction

Wings and tail: GFRP foam-sandwich shell
GFRP roving flanged spar

Fuselage: GFRP shell

Landing gear: Retractable

Main Tire and Wheel: 5.00 x 5 Internal drum brake 14.5 inches circumferance. The wheel well is completely sealed and isolated from the fuselage.

Tow Hooks:
C.G.: up to ser. no. 32 Safety tow release Europa G72 or Europa G73, from ser. no. 33 on and all DG-100 ELAN Sonderkupplung SH 72
additional as an option: Nose release E85 installed below the instrument console only for aerotow

Cockpit:
Inflight adjustable rudder pedals. Optional inflight adjustable backrest with provision for automatic or manual parachute.

Long canopy extends far down side of fuselage for excellent visibility. Quick-disconnect instrument console.

Trim, landing gear, and spoiler controls all on left side.

Parallelogram mechanism at stick for elevator control prevents PIO's and unintentional movement of stick and elevator in turbulance.

Spoilers:
Schempp-Hirth type on upper wing surface only.

Tailplane:
Mass-balanced, all flying horizontal T-tail with cockpit controlled, trimmable anti-tab.

Colour:
White, registration numbers grey

Technical Data

Wing span	=	49.2 feet	15 m
Wing area	=	118.4 square feet	11 m^2
Aspect ratio b^2/S	=	2o.5	
Length	=	23 feet	7 m
Airfoil		FX 61 - 184	
		FX 6o - 126	
Water ballast		21US gal(176 lb) (8o kg) or 26 US gal (22o lb) (1oo kg)	

2. Operations limitations and operational values

Flight performance group: N (LFS) Normal catagory

1. Airspeed Limits (I.A.S.)

Never exceed (V_{NE})	26o km/h	162 mph	14O kts
Maximum speed in rough air (V_B)	26o km/h	162 mph	14O kts
Maneuvering (V_A)	165 km/h	1o3 mph	89 kts
On aerotow (V_T)	165 km/h	1o3 mph	89 kts
On winch tow (V_W)	13o km/h	81 mph	7o kts
Landing gear extended	165 km/h	1o3 mph	89 kts
Spoilers	26o km/h	162 mph	14O kts

Full control deflection is permitted at all speeds up to maneuvering speed. At speeds in excess of maneuvering speed, control deflection should be reduced to prevent structural overloads. At maximum permissible airspeed only 1/3 of full control deflection should be used.

Maximum permissible airspeed is based on true airspeed. The airspeed indicator reads indicated airspeed. The higher the altitude, the greater the difference between true and indicated airspeed. The following table shows the indicated airspeed for V_{NE} at altitude.

	m	o - 2000	3000	4000	5000	6000
	km/h	260	247	234	222	210
Altitude	ft.	o - 6ooo	9ooo	12ooo	15ooo	18ooo
V_{NE} kts.	IAS	14o	133	126	12o	113
	mph	161	153	145	137	13o

2. Center of gravity in flight

leveling means: Tail down slope of 1oo: 3.67 measured at top surface of aft fuselage boom. (See weight sheet page 2o)

Datum (d): Leading edge of wing at root.

Forward limit: 7.86 inches aft of datum. 199,6 mm

Aft limit: 14.37 inches aft of datum. 365 mm

3. Weights

Empty weight: approx.	23o kg	5oo lbs
Maximum gross takeoff weight without water ballast :	385 kg	849 lbs
With minimum 8o kg 176 lbs waterballast:	418 kg	922 lbs
Maximum weight for non-lifting parts:	27o kg	595 lbs

4. Loading Plan

Cockpit payload

(Pilot including parachute) max. - 177 kg 258 lbs, min - 75 kg 165 lbs. Pilots C.G. most forward position at max payload 492 mm, most backward position at min payload 537 mm.

Maximum allowable gross takeoff weight must be observed. It is essential to compensate for too little cockpit weight either by ballast in the pilots seat or trim weights in the trim weight holder (46,1 inches forward of datum). One 4.9 lbs. trim weight will compensate for 8 lbs. missing from the pilot seat. Seat ballast (metal or sand bags) must be securely fastened to the glider at the seat belt attachment points.

Baggage: 3o kg 66 lbs at station 23o mm (9,1 in.) aft datum.

Waterballast

Each wing tank has a capacity of 1o$\frac{1}{2}$ gal (88 lb) (4o) kg or 26 gal (11o lb) (5o kg).
Maximum allowable ballast is determined by the empty weight and fuselage payload by means of Diagram 5. Both tanks should contain equal amounts of ballast.
Station 2oo mm (7,9 in.) aft of datum.

5. Safety weak links

Winch launch and aero tow - 11oo ± 66 lbs., 500 ± 30 kp

6. Tire Pressure

Main wheel:	36 lbs.,	2,5 bar
Tail wheel:	28 lbs.,	2 bar

7. Aerobatics (only without waterballast)

The following maneuvers are approved:

1. Spins:

Entry: Start a slow pull-up. When the aircraft starts to buffet apply full back stick with rudder in the desired direction of rotation.

Recovery: Rudder in the direction opposite to rotation, pause, then ease the stick forward. When rotation stops, neutralize rudder and gently recover from dive.
A spin is not possible with the C.G. far forward, therefore, the C.G. should be mid-range when attempting spins. An aft C.G. will produce a flatter spin.

2. Loops:	entry speed:	92 kt.	(1o6 mph)	170km/h
3. Wingovers (Stall Turns):	" "	"	"	"
4. Chandelles:	" "	"	"	"

8. Instrument Flight (Cloud Flying)

Approved if properly equipped (see below)

9. Minimum Required Equipment

Airspeed indicator	27 - 162 kt.	(31 - 187 mph)	5o-3oo km/h
green arc	35 - 89 kt.	(4o - 1o3 mph)	65-165 km/h
yellow arc	89 - 14o kt.	(1o3- 162 mph)	165-26o km/h
red radial line	14o kt.	(162 mph)	26o km/h

Airspeed indicator is to be installed so as to utilize the forward static ports.
4-piece safety belt
Altimeter, Magnetic Compass
Automatic or manual parachute or back cushion (about 3 inches thick) Cockpit placards, check list, data placards flight handbook and service manual.

Additional for instrument flight (cloud flying)

- Radio (in working order)
- Compass (properly compensated)
- Variometer
- Turn and bank indicator or gyro horizon

Experience so far has proven the airspeed indicator installation suitable for instrument flight (cloud flying)

3 Emergency procedures

3.1 Spin Recovery aileron neutral!

Rudder in the direction opposite to rotation, pause, then ease the stick forward. When rotation stops, neutralize rudder and gently recover from dive.

3.2 Recovery from unintentional Flight in Instrument Conditions (Cloud Flight)

Open the spoilers fully and maintain a speed of approximately 1o8 kt. (125 mph) until regaining visual flight conditions. Spinning should not be used as a rescue measure.

3.3 Rain and Ice

1. Influence on flight characteristics.
Landing speeds and stall speeds are only slightly affected. Otherwise, there is no discernable influence in flight characteristics due to rain or light icing.

2. Water ballast installation
Freezing of the water is a possibility at ambient temperatures of 0° C. (32° F.) or below so it is advisable to dump the ballast prior to encountering these conditions.

3.4 Canopy emergency release/ bail out

a) Two piece canopy:
To bail out, open the canopy a few inches and it will be blown open and tear off in the airstream.

b) Single piece canopy:
Open the canopy - opening lever and pull then the emergency release knob.

The low sides of the cockpit allows for a quick push-off exit.

4 Normal Operations

4.1 Preflight Inspection (Daily Inspection)

a.) The aircraft surface must be free from uneveness or irregularities, blisters, depressions, or cracks in the finish. See also 6.6

b.) All control system quick-disconnect fittings and assembly pins are to be inspected. (See also part 5)

c.) Check for any kind of extraneous matter or objects.

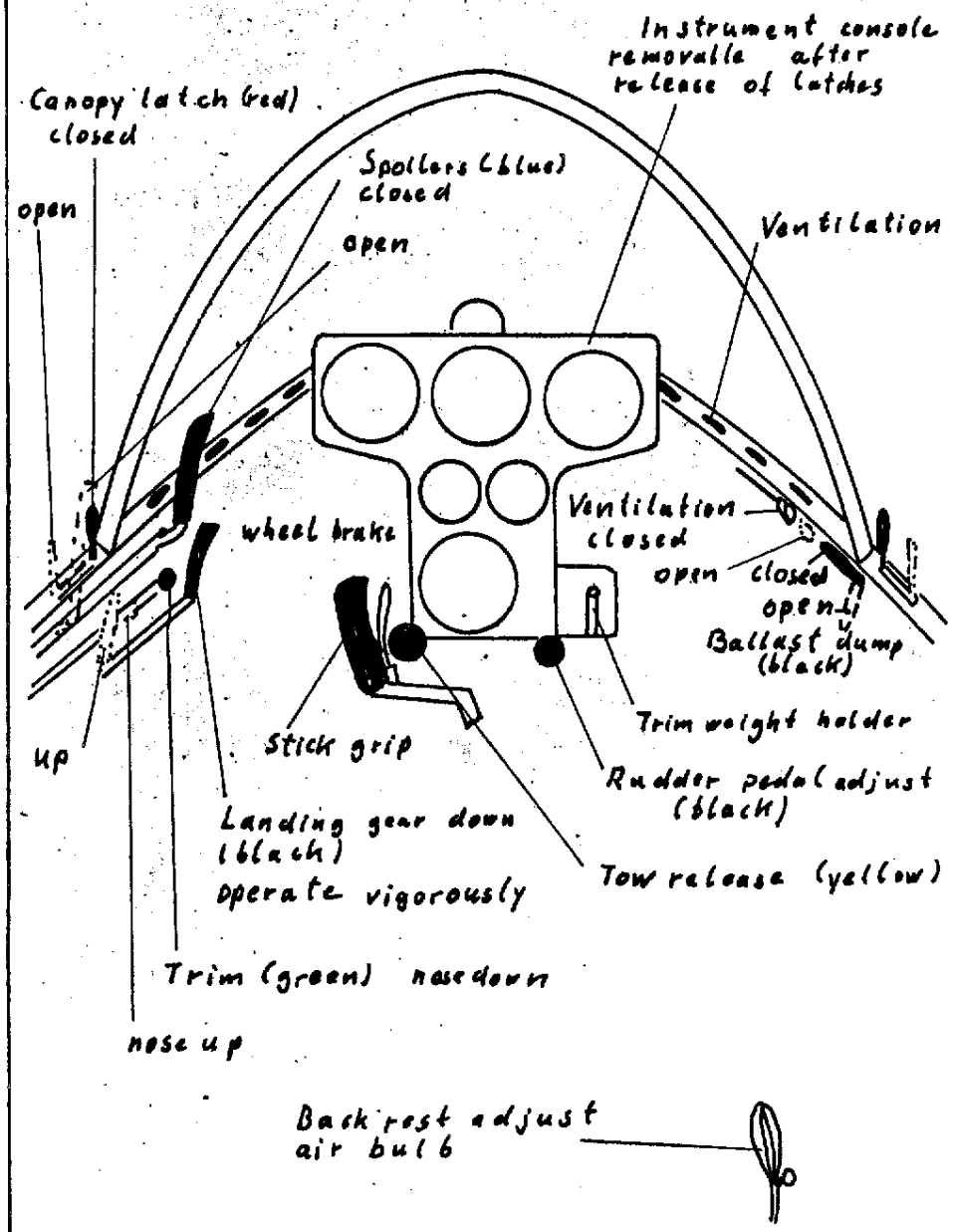
d.) Check aileron and rudder connections.

e.) Check all control elements for security and freedom of movement.

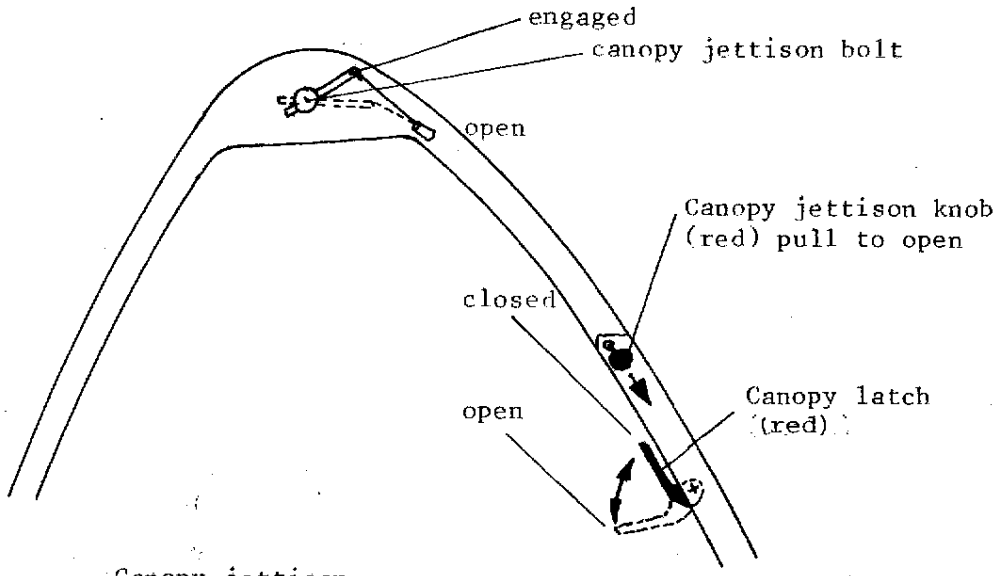
f.) Tow release check. Function and free of dirt.

g.) Visual check of landing gear, wheels, and tires.
Dirt in the forks of the main gear may cause later retraction problems.

Cockpit and Controls



Single piece canopy



Canopy jettison

1. Open canopy latch
2. Pull canopy jettison knob
   The spiral spring installed in the front hinge will lift the canopy as far as necessary to be blown open by the airstream.

Ground function test of the canopy jettison

Pull canopy jettison knob. The spring must lift the canopy 1 to 2 cm in the front even if the canopy latch is in its closed position.

Reassembly of the canopy

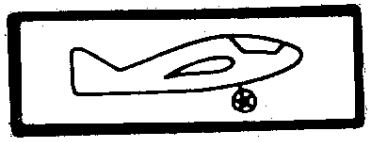
Pull canopy jettison knob to fully open position. Pull the canopy hinge to its opened position. Insert the jettison spring. Take the canopy, one person in front, one person at the rear.
Attach the canopy on the hinge and press it down. Push the canopy jettison bolt with one hand into its forward engaged position.

4.3 Cockpit Placards

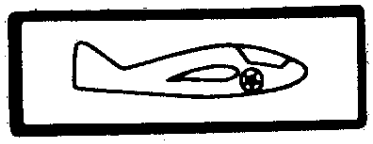
Nose down

Trim

Nose up



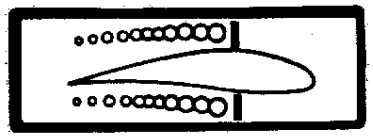
down



Landing gear

up

Wheel Brake



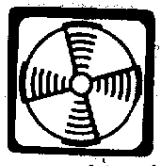
Spoilers

Tow release

Canopy latch

Rudder pedal adjust

Water ballast dump



Ventilation

4.4 Take - off

Take off check:

1. Trim weights ?
2. Parachute worn correctly ?
3. Pilot seat belts and shoulder harnest fastened ?
4. Seat back and rudder pedals adjusted ?
5. All controls and instruments in easy reach ?
6. Altimeter ?
7. Spoilers checked for operation and locked ?
8. Flight controls tested ?
9. Trim set ?
10. Canopy properly closed and locked ?

Take off Roll:
The location of the tow hitch in the fuselage centre line, the extraordinary aileron control, and the low lift-off speed with its reduced ground roll all combine in a controllability that effectively reduces possibility of wing drop and ground loop. These factors also enhance crosswind performance.

Aero-tow:

a) If only a C.G. release is installed, then the aerotow is to be executed with this release. Set trim ½ in. (12mm) aft of full nose down.
b) If an additional tow release for aerotow is installed, only this release should be used for aerotow. Adjust the trim for aerotow so that the indicator is 3 cm (1.2 in.) behind the forward position.
c) General: Hold stick in resulting position and at 75-80km/h (38-43kts.); (44-50mph) ease stick back to lift off. On very rough surfaces keep a tight grip on the stick. After attaining safety altitude the landing gear can be retracted with a forceful operation of the gear handle. Normal tow speed is 100-120 km/h (54-65 kts.) (62-75mph). Cruising tow speed is 165 km/h (90 kts.) (103mph).

Winch Launch (only allowed at the C.G. release)
All phases of the takeoff are normal. After reaching a safe height, the stick should be pulled back slowly, so that not too much speed is gained. The most comfortable winch speed is 100-110 km/h (54-60 kts.) (62-68 mph), with a minimum of 90 km/h (49 kts.) (56 mph), and a maximum of 130 km/h (70 kts.) (81 mph). Pull the tow release after reaching launch altitude. Do not wait for the automatic to function.

4.5 Free Flight

Thermal Soaring

Because of the long tail moment arm the DG-1oo has good directional stability. The good roll rate (3.5 sec. from 45° bank to the opposite 45° bank) provides the maneuverability to immediately compensate for irregularities in thermal strength or size. Quick maneuvering at very slow speeds can be done without fear of stall.

Stall Characteristics

When the DG-1oo stalls it really only mushes without a distinct stall break. Full aileron control is always available. Entering the stall with more speed and a sharp pull-up will force the DG-1oo to a more distinct stall break and a roll to the side. Easing up on the stick and rudder in opposition to the roll will execute a recovery without much loss of altitude. Rain has been found to have very little effect on stall characteristics.

High Speed Flight

The stabilator is mounted in such a way that rough air does not transmit pitching forces to the stick. The trimmable anti-tab provides stability. The DG-1oo may be trimmed at any speed up to maximum, however, the pilot should maintain a grip on the stick at all times at high speeds. Maximum permissable speed of 135 kts (155 mph) must be observed.

4.6 Spins

Water ballast in both wings does not affect spin performance. Spoilers should not be opened at any time to enter or recover from a spin. The DG-1oo has no spiral dive tendency. The spin performance is strongly dependent upon the C.G. location.
The following are some examples of spin characteristics for typical C.G. locations.

X_S = 7.86 in. A spin is not possible with this C.G. location. Depending upon the manner of pull-up the aircraft may stall and change heading 9o-18o degrees before resuming straight flight or it may simply mush straight ahead.

X_S = 12.67 in. A spin is possible under the following conditions: From slow flight just slightly above V_S, quickly pull back on the stick all the way and then apply full rudder. When the rudder tends to stay in this position, a steady state spin is achieved. Accompanying this is a slow longitudinal pitch down tendancy which does not affect the recovery pull out.

If, on recovery, the rudder is only returned to neutral, the aircraft will continue to rotate 3/4 of a turn. Full opposite rudder will result in only 1/4 to 1/3 turn before recovery. The highest recovery speed will be 81-86 kt. (93-1oo mph).

X_S = 15.2 in. The pitch down in the spin is very minimal as is also the airspeed during pull out. Recovery is normal with opposite rudder. Spinning from 45° bank with rudder into the rotation - simply neutralizing the rudder will not stop the spin. Full opposite rudder and full back stick will result in a recovery after 3 more turns. Neutral stick then full opposite rudder will cause the aircraft to make $1\frac{1}{2}$ turns before recovery. The quickest method is full opposite rudder followed by neutral stick or slightly forward of neutral which will result in recovery after $\frac{1}{2}$ turn.

4.7 Instrument Flight (Cloud Flying)

Fly especially smoothly. One should not use a spin as a rescue measure. In emergency open the spoilers and maintain approximately 1o8 kt. (125 mph), 200 km/h until regaining visual flight conditions.

4.8 Aerobatics (only without waterballast)

Only the maneuvers listed below are approved. If the given entry speeds are observed, there will be no necessity for especially vigorous control application and high structural loads will be avoided. All maneuvers are to be done gently.

The following maneuvers are approved:

		entry speed
1. Spins		
2. Loops	(170 km/h)	92 kt. (1o6 mph)
3. Wingovers (Stall Turns)	(")	92 kt. (1o6 mph)
4. Chandelles	(")	92 kt. (1o6 mph)

The wingover is especially graceful when not only rudder is used but also a little aileron in the direction of turn. The amount of aileron should be reduced at the top of the maneuver.

4.9 Approach and Landing

Final approach speed in smooth air is 44kt.(50mph), 90km/h
Good short field landing capability due to the high rate of descent possible with the Schempp-Hirth spoilers. The DG-1oo slips well and this can be used as an approach aid.
Low speed controllability is such that landings in even strong crosswinds are simple and routine.
The approach speed should be increased by approximately $\frac{1}{2}$ the wind velocity to protect against low level wind shear. This extra speed can be reduced just prior to touchdown. Additionally, in gusty conditions the approach speed should be increased and this extra speed should be carried to touchdown.
The docile nature of the FX 61 - 184 airfoil will permit even a tail whell first touchdown without the subsequent hard drop-in.
Landings in very soft fields with the landing gear down are possible if the stick is held back during roll-out.
Only for landings in very short fields should the landing gear be left retracted.
After a soft field landing it is important to remove dirt or other foreign matter from the retraction cables to prevent the possibility of future retraction problems. A simple hosing with water is the best cleaning method.

4.10 Hints for the Competition Pilot

A few general tips on ballast:

For lift of less than 2 kt., 1 m/s, it will be profitable to fly without ballast. This is also true for extremely weak weather or when working the weak evening lift. Medium lift of 4 kt., 2 m/s, will require about half ballast, 40 l or 11 US gal. (9 Imp. gal.). Use full ballast in lift of 6 kt., 3 m/s, or more. Maximum allowable takeoff gross weight must be observed. The maximum ballast is determined by empty weight and fuselage payload by means of Diagram 5.

While in flight, ballast may be reduced as desired by using a dump rate of approximately one quart per second, (1l/sec.)

The competition pilot will appreciate the enhanced response given by a center of gravity which lies near the aft limit.

To obtain maximum performance, the sailplane surfaces should be clean and gaps at the wing and fuselage junction and at the tail should be sealed with tape.

The polar (diagram 1) is valid only under these conditions.

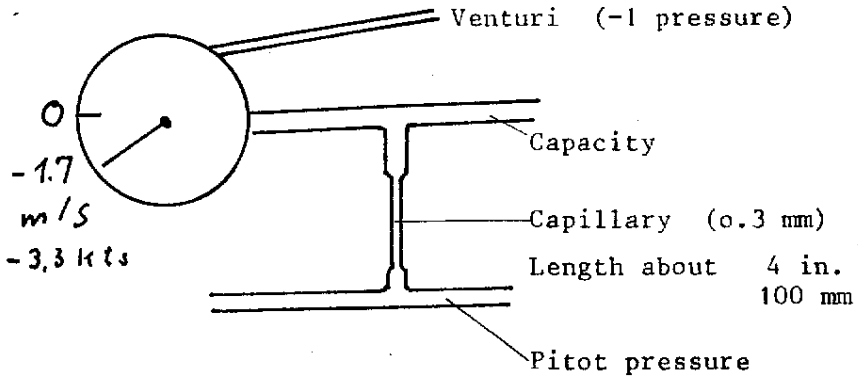
An accumulation of dirt, rain etc. will degrade performance slightly.

Good instrumentation is necessary to achieve high efficiency flight. In addition to a variometer, one certainly should have a combination instrument which displays airspeed, vertical velocity, and Mc Cready values. Several "Sollfahrtgeber" instruments are available from German manufacturers. The following Mc. Cready values are computed for still air.

m/s	kt.	5.9 lbs/sqf.	29 kg/m²	6.8 lbs/sqf.	33 kg/m²	wing loading airspeed kts. mph, km/h
0	o	51 (59)	95	54 (62)	900	
1	2	68 (78)	125	7o (81)	130	
2	4	78 (91)	145	84 (97)	155	
3	6	9o (1o3)	165	96 (11o)	175	
4	8	98 (112)	180	1o1 (117)	185	

It is easily seen from the above table that the combination instrument will yield values of sufficient accuracy at medium wing loadings.

Connection of the "Sollfahrtgeber"



4.11 Water Ballast

One eleven gallon 50 1 PVC water tank in each wing. Dump is accomplished thru two valves, one in each wings bottomside near the fuselage. On the ground each wing can be drained individually by opening only one valve. The dump rate in flight is about one quart per second so the amount remaining ca be easily controlled.

Filling the Tanks

For filling the Waterballast pull back the lever (top-right tank, bottom-left tank) in the cockpit.
Place one wingtip on the ground. Attach the hose connection in the water outlet on the undersurface of the wing.

Fill with the desired amount of water, remove the hose and close the valve with the waterballast lever. Place the other tank.
In case the valve leaks slightly, apply some grease to the valve surfaces.
After filling the tanks, check to see if the wings are balanced. If one wing is heavy, release enough water to balance the wings.

Precautions Concerning Flight with Ballast

Ambient temperatures of less than 0^{o} C could cause the water to freeze so dump ballast prior to encountering these conditions. Ballast raises the landing speed and increases the landing roll. It is,therefore, recommended that ballast be dumped before landing off-field.

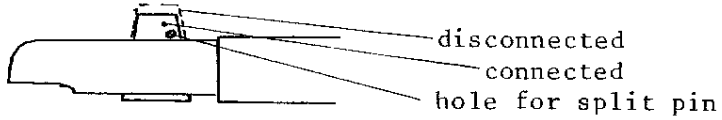
Dump immediately in case of leak.

Maximum allowable ballast is determined by use of diagram 5.

5. Assembly and disassembly

5.1 Assembly

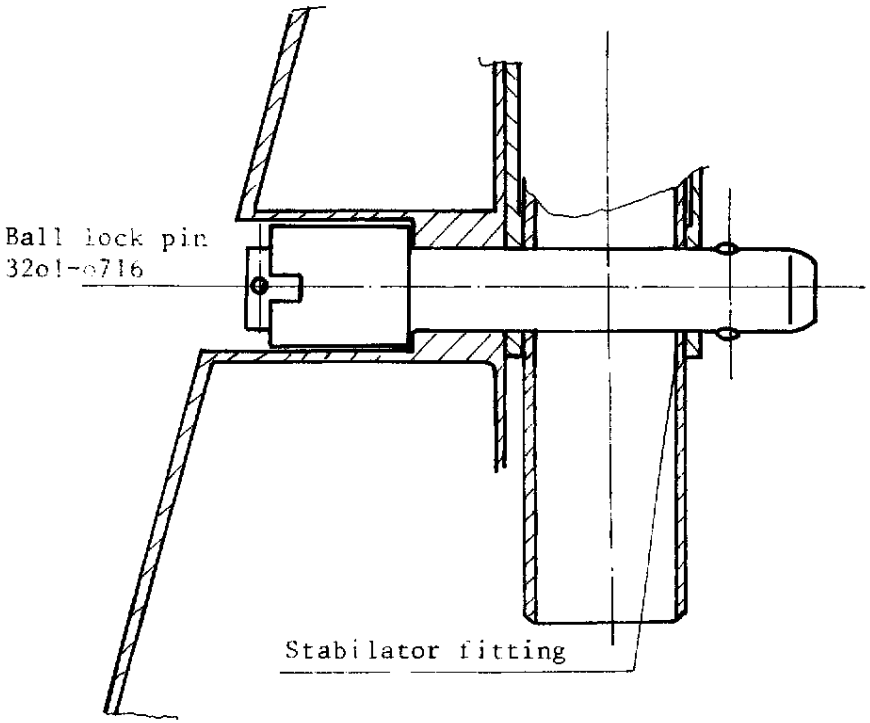
1. Open the canopy and open the access cover with a screwdriver.
2. Clean and lube the pins, bushings and the ball ends of the control rod quick connects.
3. With a helper on the wingtip, lead the wings into place. Sight through the wing main pin bushings to determine alignment. Push the main pins in as far as possible. Turn the handles up to the fuselage wall. Therefore pull out the white securing knob. Set the knob back in its locking position.
4. Connect aileron and spoiler controls. Spoilers should be closed but not locked. To check the quick-disconnects, be sure the latch extends through the rod and protrudes on the other side. The hole must be visible. It is recommended to fit a diameter 1 mm split pin or a safety needle in the hole.



Close fuselage access door.

5. Mount stabilizer, letting it rest, for the moment, on the locking pin. Attach the trim tab fork to the trim drive. (The cockpit control should be in the full backward position). Pull out locking pin. Seat stabilizer completely and secure locking pin. Attach stabilizer control quick-disconnect. (See step 4 above).
   Attach cover plate (screwdriver).
6. Check flight control movement.
7. Check: Main tire pressure 2,5 bar 36 psi
   Tail wheel 2 bar 28 psi
8. Check instruments

Stabilator Lock



6. Maintenance and Inspection

6.1 Weight and Balance

Method of weighing your DG-1oo:

1. Assemble the glider completely with gear down.
2. Place a scale under the tailwheel.
3. The fuselage must be leveled so that the top of the aft fuselage boom has a tail-down slope of 1oo : 3.67.
4. Water ballast tanks should be empty.
5. Read weight of tail wheel. W_2.
6. Be certain the wings are level.
7. Measure the distance between perpendiculars through points a and b. (see figure, next page)

Using the Empty Weight and the values determined above, calculate the C.G. as follows:

C.G. Empty:

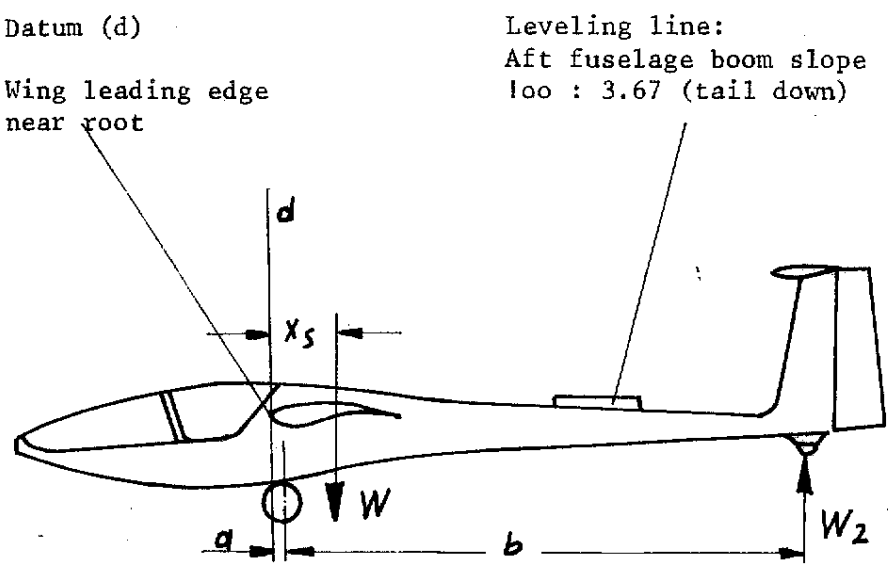
$$X_{s\ empty} = \frac{W_{2\ empty} \times b}{\text{Gross Weight}_{empty}} + a$$

Weight includes all accessories but excludes pilot and parachute. Remove loose objects from cockpit.

C.G. In Flight:

$$X_{s\ gross} = \frac{W_{2\ flight} \times b}{\text{Gross weight}_{flight}} + a$$

The flight weight includes empty weight items plus pilot, parachute, and all items needed in flight (barograph, camera, cushions, etc.). In addition, the rudder pedals and seat back should be adjusted as in flight.



Repairs or alterations

After the addition or deletion of equipment or accessories repairs, painting, or any change in the aircraft that could influence the weight and balance; a new weight and balance must be computed. Aircraft certificated as Standard Catagory must have the weight and balance certified by a licensed Airframe Mechanic. Empty weight C.G. range is determined by referance to diagram no. 2. If the C.G. is out of limits, adjustments may be made by ballasting or by relocating equipment or accessories.

6.2 Weight and Balance Record

Maximum allowable Flight Weight

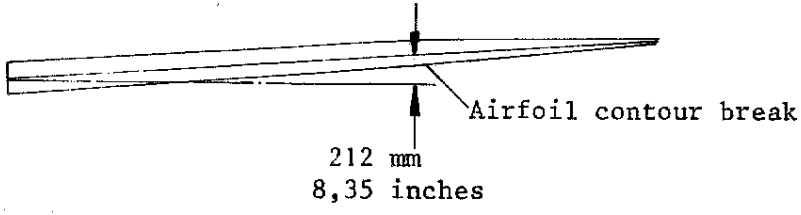
Weighed on					
Empty Weight					
Instruments					
Oxygen Equipment					
Empty Weight C.G. aft of datum	in.				
Minimum Weight in pilot seat	165 lbs				
Maximum Payload Pilot with parachute, water, baggage	lbs.				

6.3 Reference Data

Wing

Sweep Back = 0°

Dihedral (Leading Edge, Line) = 3°



Angle of incidence = 0°

Wing oscillated frequency: ..... / min Aircraft should rest on the wheels during the frequency measurements.

Flight control Travel and Tollerance

Aileron:

up 1o2 mm ± 5 mm
down 46 mm ± 5 mm
measured 188 mm from center of motion.

If the full-travel distance is too small, the short push rod on the aileron drive must be shortened.

Rudder:

± 243 mm + 1o mm tolerance
measured 46o mm from center of motion

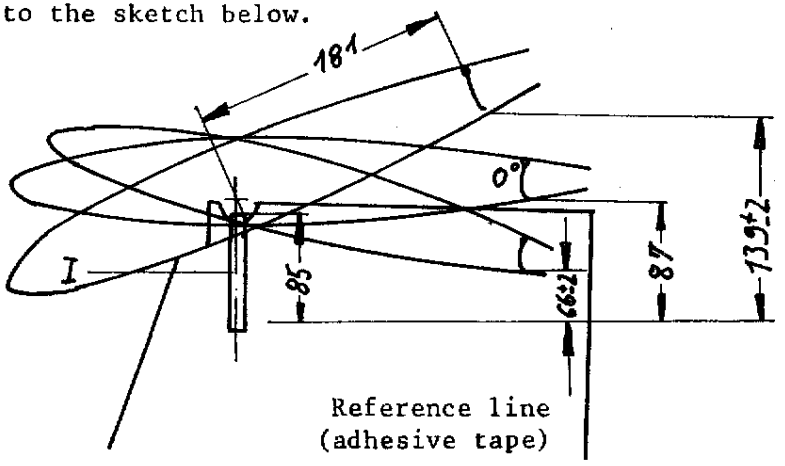
The midpoint of rudder travel can be adjusted by letting out on one cable and taking up on the other simultaneously and in equivalent amounts.

Stabilizer:

139 ± 2 mm 66 ± 2 mm

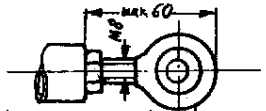
Stabilizer position may be determined in the following manner:

Level the fuselage, lay a straight edge across fitting I, position a length of adhesive tape 85 mm below the straight edge. The tape must also be level. Using the tape as a referance line, measure stabilizer position according to the sketch below.



Trim tab: (permanently adjusted at factory)
With the stabilizer in the 0° position and the trim control 3 mm ahead of the full aft position, the trim tab should fair-in with the stabilizer.
Friction adjustment is on the left side under deck of baggage area.

Spoilers:
The short push rod in the fuselage is adjusted so that the spoilers are extended evenly and are easily locked closed.
Extension out min. 140 mm, in 0 mm.
It is important that the control rod ends are not unscrewed more than a maximum of 60 mm.



6.4 Inspections
Every 200 flight hours the following items are to be checked:

1. Rudder cables for wear especially near the S-shaped tube guides of the pedal adjustment mechanism. Replace worn cables with the following hardware:
   Steel wire cable 3.2 mm diameter LN 9374 with copper NICOPRESS sleeve 28-3-M use tool No. 51-M-850 or 63 V-XPM or 64-CGMP, use M groove.
2. Trim tab cable ends, particularly where they connect with the aluminum levers. The forward lever is located under the baggage area deck on the left side. The rear lever is visible through the rudder cove bulkhead after removing the rudder.
3. Check every year all screwed connections and safety devices. Check controls for sufficient lubrication and rust prevention.

Canopy emergency release of the single piece canopy:
To be checked every 3 month referring to flight manual page 9a.

Wheel brake:
Adjust the wheel brake occasionaly. This is done at the adjustment screw at the front landing gear strut above the wheel brake lever.

Landing gear:
Clean after soft field landings (see 4.9.)

Tow release:
Clean tow release. After a gear up landing check cable deflectors. Damaged parts must be replaced before the next take off.

Inspections

In addition to the inspections listed in item 6.4 the following inspections have to be accomplished:

Airbrake torque tube in the fuselage
On every annual inspection the airbrake torque tube in the fuselage must be inspected according to TN 301/18, working instruction no.2.

Airbrakes
On every annual inspection the airbrakes must be inspected according to TN 301/18, working instruction no.1.

6.5 Removal of the Water Ballast Tanks

Tie a piece of nylon cord (3mm) diameter and at least 5 m long, to the nylon cord sticking out of the wing root rib. Unscrew the screw cap of the valve. Pull the valve body with the tank out of its suspension in direction of the wing tip. Then pull the valve body and tank out of the wing through the opening in the root rib. Unknot the nylon cords from the tank and open the hose clamp at the valve. Attach the new tank and install it analogous. Fill the tank and check for watertightness.

6.6 Repair of Damage

Before every flight and especially after a period of nonuse, a thorough ground check should be carried out. Visually check the surface for small depressions, bubbles, and other uneveness. This could be a signal that something is not right.

Contact the manufacturer immediately and, if possible, send a photo of the damage and a report by a licensed airframe mechanic. The manufacturer will be able to supply the correct advice and a repair program saving you the time and troubles of quesswork and bad tries.

Minor surface damage such as scratches, gouges, and cracks in the finish may be repaired by a licensed airframe mechanic. (See also page 31). Knowledgeable advice can also be found in the Petite Plane Patch Primer. A list of materials for the DG-1oo and a check list for postaccident inspection is found on pages 27-29.

Repairs by the owner should not be attempted if:
The spar flange is damaged.
The main fittings on the wings, fuselage, or tail are torn out or if in the immediate vicinity there are white areas in the laminations.
The parts are torn in such a way as to make repairs uncertain without the use of jigs or appliances.
The damage is so extensive that the original shape or contour is obscured.
Or if it would be necessary to cut away undamaged areas to gain access to damaged areas.

6.7 Service and Care

You have chosen a sailplane made of fiberglass which, though elegant, is enormously strong and robust.

A few tips for care of the surface:

- o Wash the surface only with clear water using a sponge and chamois.
- o Never use gasoline, alcohol, or thinner for cleaning.
- o Do not use detergent too often.
- o The surface may be pollished as often as desireable. When using a power buffer, care must be taken that the surface is not overheated.
- o This sailplane should be protected from moisture just like other sailplanes.
- o The surface should be protected from intense sunlight (heat) and ballast should not be retained for extended periods.

6.8 Lubrication

Periodically, make a detailed inspection of the sailplane and lube all bearings. Especially the ball bearing univers joints should be cleaned and lubed (Molycoat Long-life). These areas are involved:

- o Aileron drive directly accessable at the wing contour break.
- o Spoiler drive in the spoiler box. In this location are the spoiler bearings which should be lubed.
- o Unscrew the push rod fairing on the left bulkhead and lube the guides.
- o Remove the storage area deck. Stabilizer, aileron, trim, and water ballast control rods should be lubed.

- o Open fuselage access cover. Lube sopiler control and flight control quick-disconnects.
- o Remove stick mechanism cover. Lube stick mechanism.
- o Lube guide of rudder adjustment mechanism.
- o Oil bearing points of gear struts in wheel well.
- o Lube the guide of the gear lever with Vaselene.
- o Clean and lube all hinges (elevator, rudder, ailerons, trim)

Single piece canopy

- o Take off the canopy and clean and grease the locking mechanism. After reinstalling the canopy, check the pilot force needed for emergency release with the red ball handle using a spring balance. The force should not exceed 200 N (44 lbs.).
- o Check the canopy emergency release referring to flight manual page 9a.

Glaser-Dirks Flugzeugbau GmbH
Im Schollengarten 19-20, Tel. 07257-1071
7520 BRUCHSAL 4 (Untergrombach)

Service Information 1/86

Subject: Hotellier control quick connects

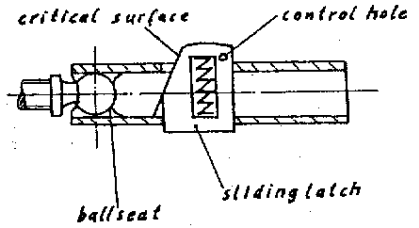
Concerning: DG-100 (G), DG-100 (G) ELAN
DG-200, DG-200/17, DG-200/17C
DG-400
all serial no's

Reason: The sliding latch of the quick connect may loose its nonreversibility due to lubricants. This is most important for the airbrake control hook up.

Measures:

1. When servicing the Hotellier quick connects be careful only to grease the ballseat.
2. Clean the sliding latch with Aceton or similar degreasing agent. Operate the latch several times to make sure that no lubricant rests at the latch. Repeat this measure at least one time a year and after greasing the ballseat.
3. For your own safety it is recommended to fit a diameter 1 mm spring pin (500 30 771) into the control hole.

   At older aircraft it may be necessary to enlarge the control hole with a diameter 1,2 mm drill.
4. Please file this service information next to the greasing programme in the manual of your DG.



Bruchsal 4, July 15, 1986

Wichelm Dirks

6.9 Material List

List of materials used in the DG-1oo

Resin: Shell Epikote 162

Catalyst: BASF Laromin C 26o
Mixing proportions looparts resin: 38 parts catalyst by weight or 2 parts resin: 1 part catalyst by volume.

Fiberglass Fabric:

Interglas No.	US No.	Weave	Weight (grams/sg. meter)
9oo7o	161o	Linen	8o
9211o	-	Twill	163
92125	-	Twill	28o
9213o	-	Linen	39o
92145	181-15o	Unidirectional	22o

All fabrics - finish I 55o

Rovings:

Gevetex EC-1o-8o-24oo K 43 with Silanschlichte

Foam:

Continental Conticell C 6o Color - brown
Röhm GmbH Rohacell 51 Color - white

Lacquer:

Lesonal PE Schwabbellack Mixing ratio 1oo : 2

Filler:

The resin catalyst mixture may be thickened with chopped cotton fibers. Non-thickened resin and catalyst mixture is applied to the area first as a bonding layer then the thickened mixture may be used.

6.1o Check List After Suspected Damage

Entire Aircraft:

Inspect the general alignment along the longitudinal exis (vertical and horizontal tail surfaces)

Wing-flex characteristics , wing angles and measurements in agreement with previously mentioned specs.

Wings:

Spar pins: Check for deformation in main pins and bushings and also white spots around bushings.

Wing root rib: Separation between rib and wing shell or between rib and main spar?

If necessary, remove paint and putty to determine if cracks extend into FRP.

Check for white spots and delaminations around bushings.

Shell: Compression fractures, cracks, blisters?
Spanwise, hair-line cracks in the leading-edge near the stagnation point can be ignored.

Ailerons: Compression fractures, cracks, blisters?
Check hinges and drives.

Check list

Fuselage:

Fuselage to wing connections:
White spots, excessive play, bent tubes (hard assembly)?
Fuselage and vertical stabilizer intersection: Cracks?
Scrape away paint and putty. While moving vertical stabilizer side to side and fore and aft, check for cracks extending into GFRP.
Stabilator mounting: Excessive play? Check top rib of vertical stabilizer for cracks expecially near fittings.
Rudder bearings: Excessive play, white spots in FRP, bent fittings, cracks in finish?
Tail wheel: Enlarged axle hole? If so, fill with thick filler.
Fuselage shell:
Outside: Cracks, creases, nicks?
Inside: White spots, sharp white zig-zag lines, cracks?
Any loose ribs?
Has any bulkhead become loose? To check this remove also the control column boot, instrument panel cover and the access cover of the tow hook compartment and check the bulkheads in this areas carefully.
Torsion check: Hold fuselage steady and attempt to move vertical stabilizer - does it move easier than usual?
If so, are the cracks visible?
Landing gear:
Check for straight axle, bent struts, alignment, ease of operation, over center locking? is dirt in the forks of the forward strut?
White spots or cracks in the wheel well bulkheads.
Remove deck of storage area and inspect wheel well.
Gear lever condition?
Tow hook:
Especially afer a belly landing check for dirt, function and if housing loosened or separated from fuselage.

Seat back rest bulkhead:

Cracks? Shoulder strap connection?

Seat belt:

Check for white areas near fuselage attachments.

Stick:

Check suspension. Excessive play?

Controls:

Condition and proper operation of all flight controls and all other operating devices.

Instruments:

Function? Dirt in the pitot plenum?

For further checks see page 23.

6.11 Repair instructions

I. The following can be repaired:

1. All damage to paint and putty.

2. Holes on the belly of the fuselage if the maximum diameter does not exceed the following:

Forward fuselage	8o mm
Aft boom	4o mm

Cr Cracks in the belly maximum length:

Forward fuselage	12o mm
Aft boom	8o mm

The blind glue joints of the fuselage boom should not be damaged.

3. Holes, cracks, blisters in the wings, tail, and control surfaces not in excess of the following dimensions:

	Diameter	Length
Wings	1oo mm	15o mm
Stabilator	5o mm	8o mm
Aileron	5o mm	8o mm
Rudder	5o mm	8o mm

The parts may not be damaged in the spar area.

4. Replacement of bent fittings.

II. Methof of FRP repairs (2,3 above)

1. Remove damaged fabric, bevel edges and roughen surface around hole.

2. All repairs must follow the procedure of wet over dry.

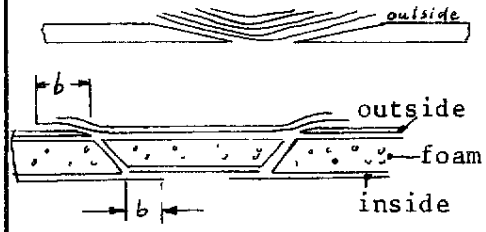
Special tips for handling FRP repairs are found in the Petite Plane Patch Primer.

3. The following overlap dimensions are to be maintained.

These dimensions apply to all phases of the repair work.

Part	Overlap b (cm)	Fabric Layers and Type
Wing shell outside	1	3 x 92 11o ✱
Wing shell inside	1	1 x 92 13o ✱ or 3 x 92 11o ✱
Stabilator, aileron, rudder, shell inside and outside	1	1 x 92 11o ✱
Trim tab	1	1 x 92 11o ✱ + 1 x 92 125 ✱
Forward fuselage belly	6	1 x 92 11o ✱outside 3 x 92 125 ✱ 7 x 92 125 ╫
Fuselage boom belly	5	1 x 92 11o ✱outside + 3 x 92 125 ✱ + 7 x 92 125 ╫

4. Method of beveled repair



FRP shell (ex. fuselage)

FRP-foam sandwich (ex. wing)

Outside fabric layers can be pressed into foam before new layers are applied.

6.12
Control Surface Mass Balances

After the repair of any control surface, the mass balancing must be checked.

Rudder

Disconnect control cables and lie fuselage on its side so that stabilizer is horizontal. At a point 2oo mm (7.87 in.) from hinge line, lift rudder with small scale. If the scale reads more than 45o g (1 lb.), correct by adding metal strips to mass balance until the scale reads less than 43o g (o.95 lbs.)

Aileron

Suspend the aileron freely at hinge line and lift 18o mm (7.o9 in.) from hinge line with scale. If scale reads more than 388 g (o.85 lb.), the mass balance must be increased.

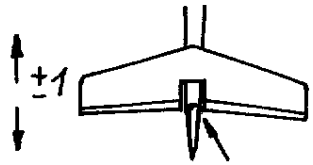
Stabilator

Holding the stabilator by its mounting fitting, lift with scale 181 mm (7.125 in.) from hinge line until surface lies level. Scale must not read more than 22o g (o.48 lb.).

6.13
Tangential play of horizontal tailplane

Tangential play is unobjectionable if it does not exceed ± 1 cm (± 0,4 in). (Measure only the play, not the elastically deformation of the whole structure!)

Check for clearance between tailplane, trimtab and the access cover



Enlarge clearance if necessary

6.14
Play in Control Systems

Aileron:

With the stick fixed in a neutral position, the play in the aileron 188 mm fromthe hinge line should be ± 1.5 mm and the aileron should be neutral.

With the aileron fixed, the play in the stick at the top should be ± 3 mm.

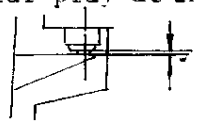
Stabilator:

With the surface fixed in neutral, the play at the stick at the top should be ± 3 mm.

Trim tab:

With the stabilator in neutral, allowable play is ± o,5 mm at 11o mm from hinge line.

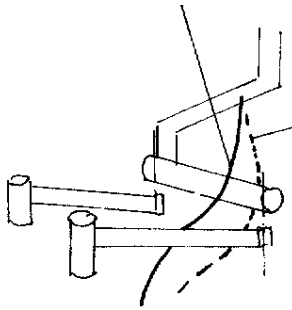
Rudder: Axial play at the upper hinge max. o,5 mm



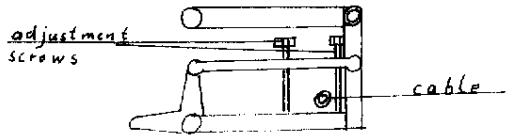
max. o,5 mm

Repair of the brake cable

In case of replacement it is of importance that the cable should be placed between the two parallelogram arms of the sticksystem (see drawing).



Placement of the cable outside the parallelogram might lead to a blockation of the stearing mechanism.



7. Instrument- and equipment list

1. Airspeed indicators

Manufacturer	Type
Winter	6 FMS 4 (10.210/10)
Winter	6 FMS 5-2 (10.210/3)
PZL	PSO 6
PZL	PR-400 S

The airspeed indicator must have the speed range markings see Flight manual page 6.

2. Altimeters

Manufacturer	Type
Winter	4 FGH 10
PZL	PW 12

3. Four piece safety belt and shoulder harness (symmetrical)

Manufacturer	Type
Gadringer	BAGU IV-B (40.070/16)
	SCHUGU II-c(40.071/05)
	SCHUGU FAG-7 D/O (40.070/30)
	BAGU FAG-7 H/O (40.071/21)

In addition for cloud flying

4. Radios

Manufacturer	Type
Dittel	FSG-40 S (10.911/45)
Becker	AR 2008/25 (10.911/48)

5. Compass

Manufacturer	Type
Bohli	46 MFK 1
PZL	B-13 KJ
Ludolph	FK 16

The compass is to be compensated in the glider.

6. Variometer

Manufacturer	Type
Winter	StV 55 (Ø 58)
Winter	StV 5 (Ø 80)
Winter	5 StVL (10.230/11)
Winter	5 StVLM (10.230/12)
Winter	5 StV (10.230/13)
Winter	5 StV M (10.230/14)
PZL	PRO 4 (Ø 58)
PZL	PRO 03 (Ø 80)

7. Turn and bank indicators

Manufacturer	Type
Apparatebau Gauting AOA	WZ-402/31 12 V (10.241/ 8)
PZL	EZS-3

or a certified artificial horizon

E. Inspection Procedure For Increase Of Service Time

1. General

The results of fatigue tests of wingspar sections have demonstrated recently that the service time of GFRP gliders may be extended to 6000 hours, if for each individual glider (in addition to the obligatory annual inspections) the airworthiness is demonstrated according to a special multi-step inspection program particularly with regard to the service life.

2. Dates

When the glider has reached a service time of 3000 hours, an inspection must be done in accordance with the inspection program mentioned under point 3.
If the results of this inspection are positive or if any defects found have been duly repaired, the service time of the glider is extended by another 1000 hours to a total of 4000 hours (first step).

The above inspection program must be repeated when the glieder has reached a service time of 4000 hours.
If the results of this inspection are positive or if any defects found habe been duly repaired, the service time of this glider is extended to 5000 hours (second step).
When the glider has reached a service time of 5000 h the above inspection program again must be repeated .
If the results of the inspection are still positive, or if any defects found habe been duly repaired, the service time may be extended to a total of 6000 hours (third step).

For a possible service time exceeding 6000 hours procedures will be evaluated in the future.

3. LBA-approved Glaser-Dirks Flugzeugbau GmbH document No.XXXX (to be issued and approved in the future) contains the structural inspection procedures and limitations to be used for extending the service life above 3000 flight hours.

4. The inspection must only be done by the manufacturer or by a licensed repair station or inspector.

5. The results of the inspection have to be recorded in an inspection test report wherein comments are required for each inspection instruction. If the inspections are done outside the manufacturer's facilities, a copy of the records must be sent to the manufacturer for his evalution and information.

6. The annual inspection is not affected by this inspection program.

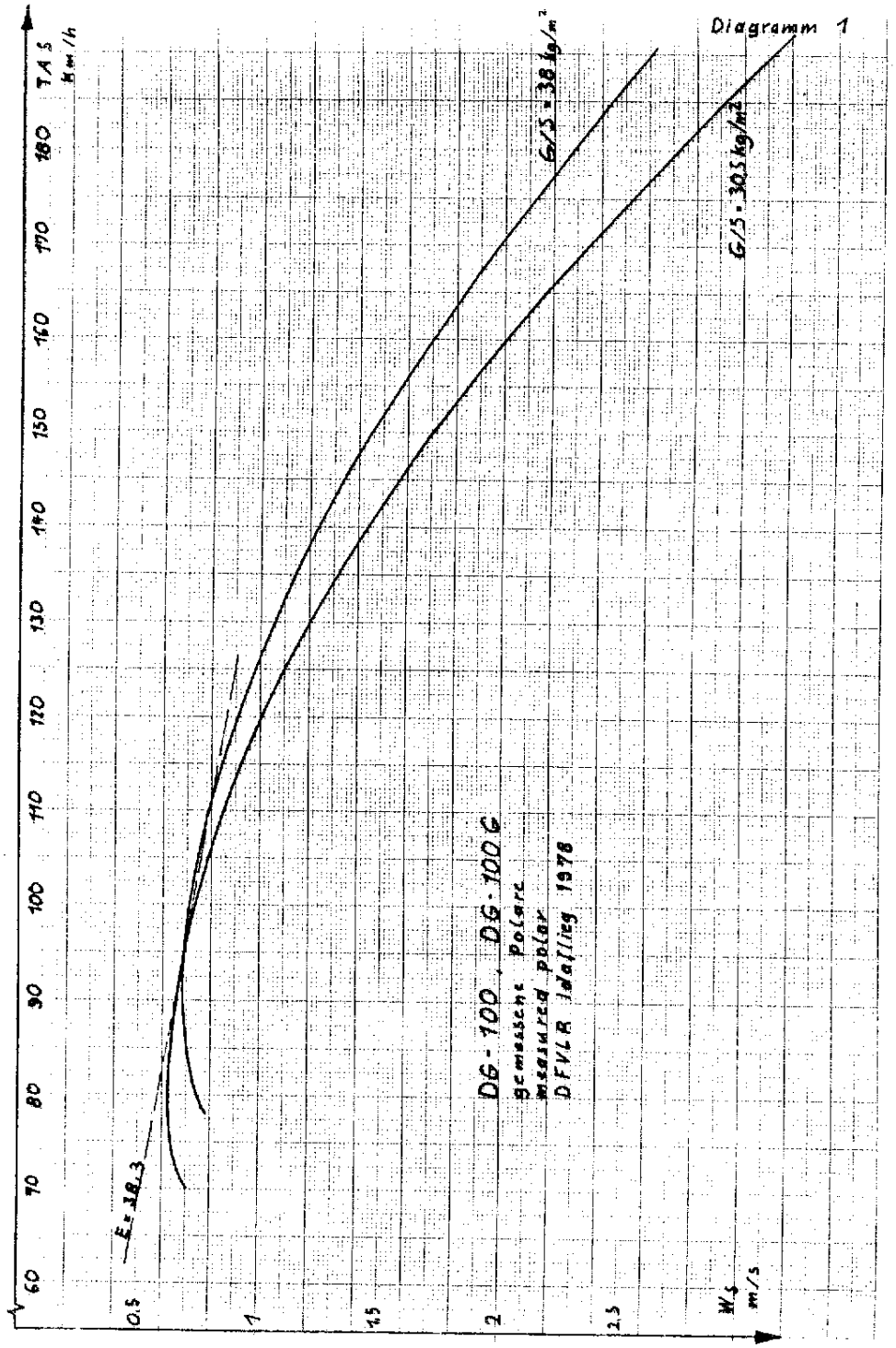


Diagramm 1
TAS km/h
60
70
80
90
100
110
120
130
140
150
160
170
180
G/S = 38 kg/m²
G/S = 30,5 kg/m²
E = 38,3
DG - 100 , DG - 100 G
gemessene Polare
measured polar
DFVLR Idaflieg 1978
0,5
1
1,5
2
2,5
Ws m/s

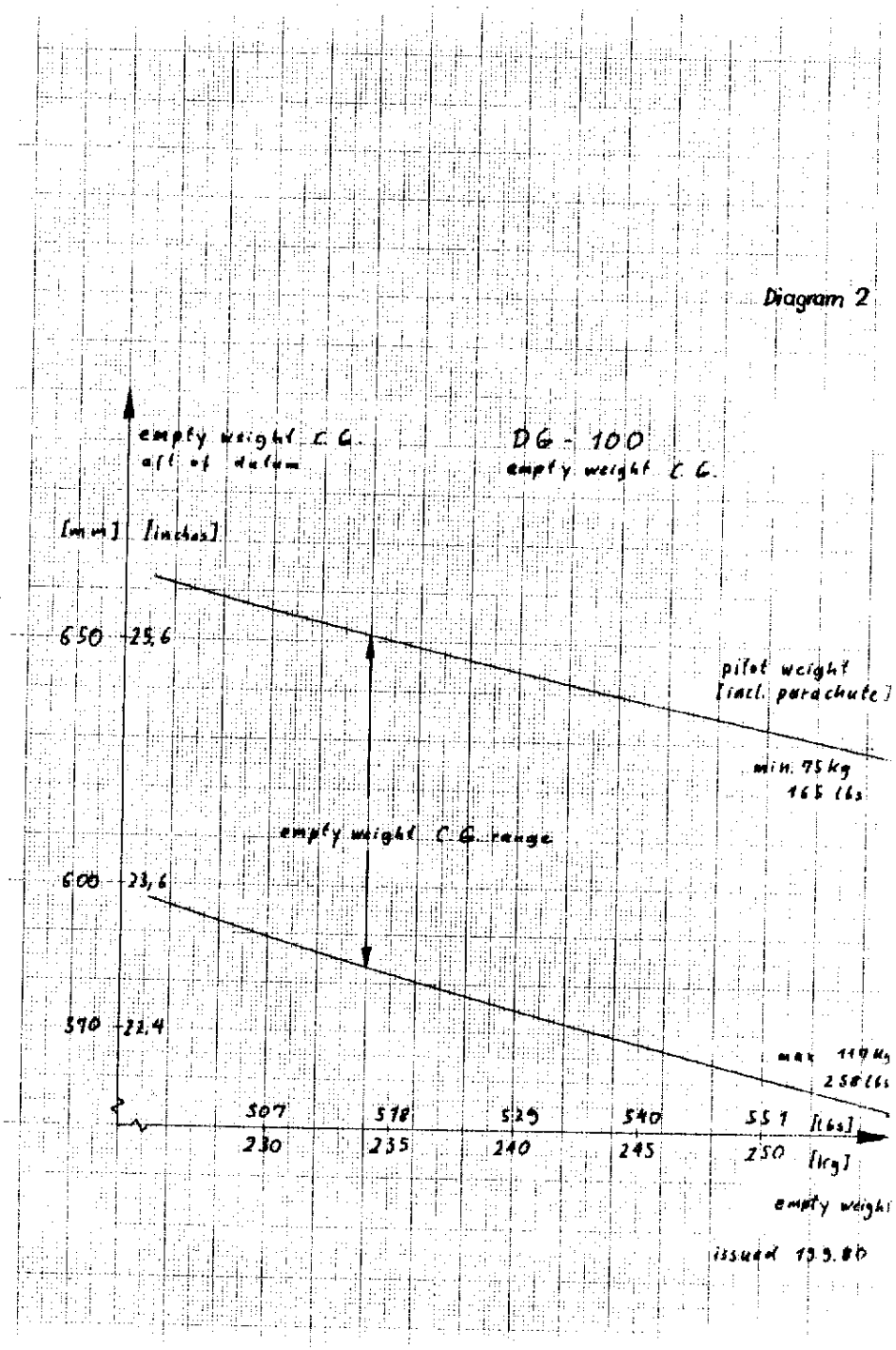
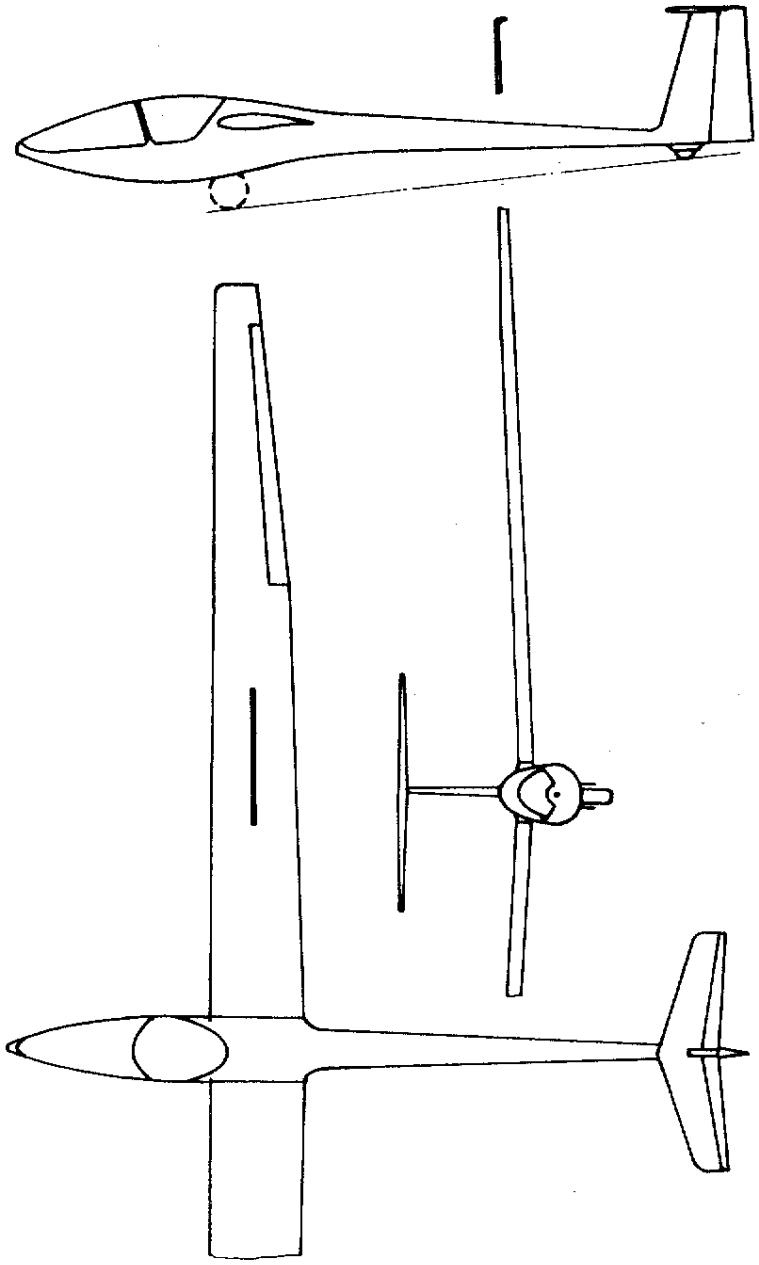
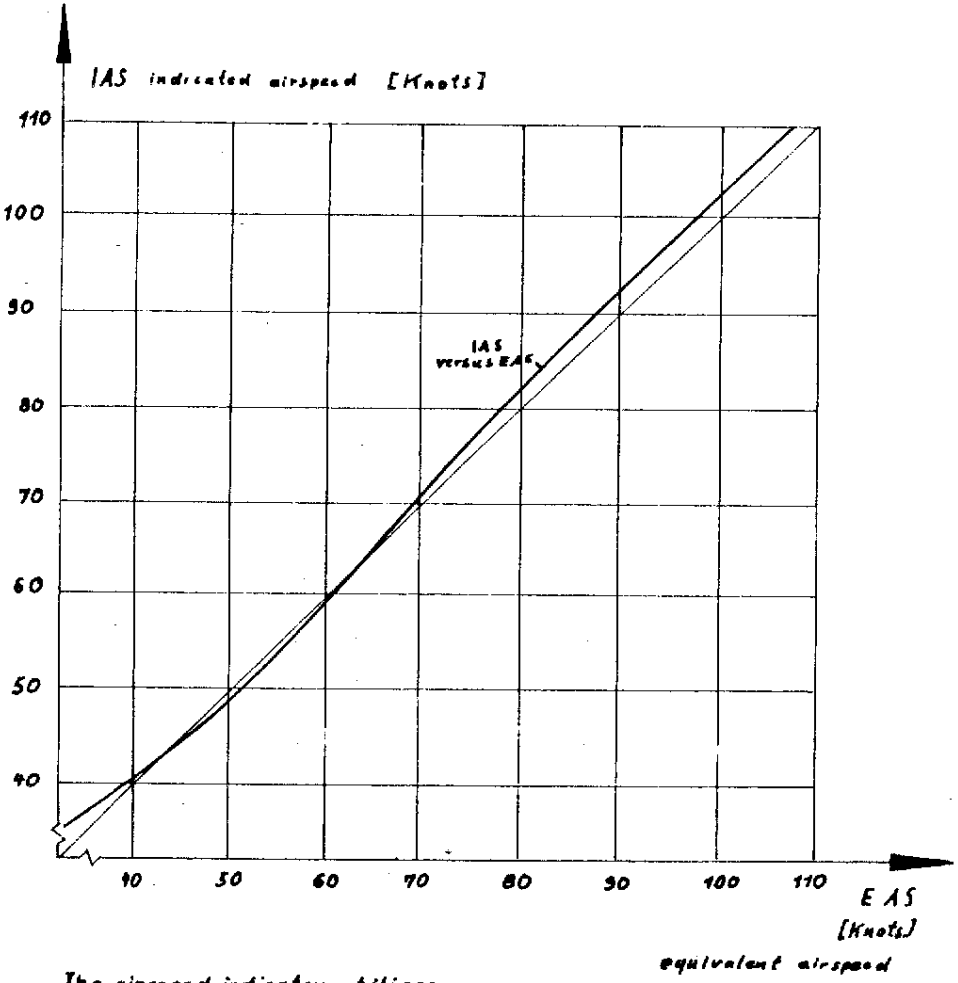


Diagram 2
DG - 100
empty weight C.G.
empty weight C.G. aft of datum
[mm] [inches]
650 25,6
600 23,6
570 22,4
pilot weight
[incl. parachute]
min. 75 kg
165 lbs
empty weight C.G. range
max. 119 kg
258 lbs
507 518 529 540 551 [lbs]
230 235 240 245 250 [kg]
empty weight
issued 13.5.80

DG-100



Airspeed Calibration DG-100



The airspeed indicator utilizes the forward static ports

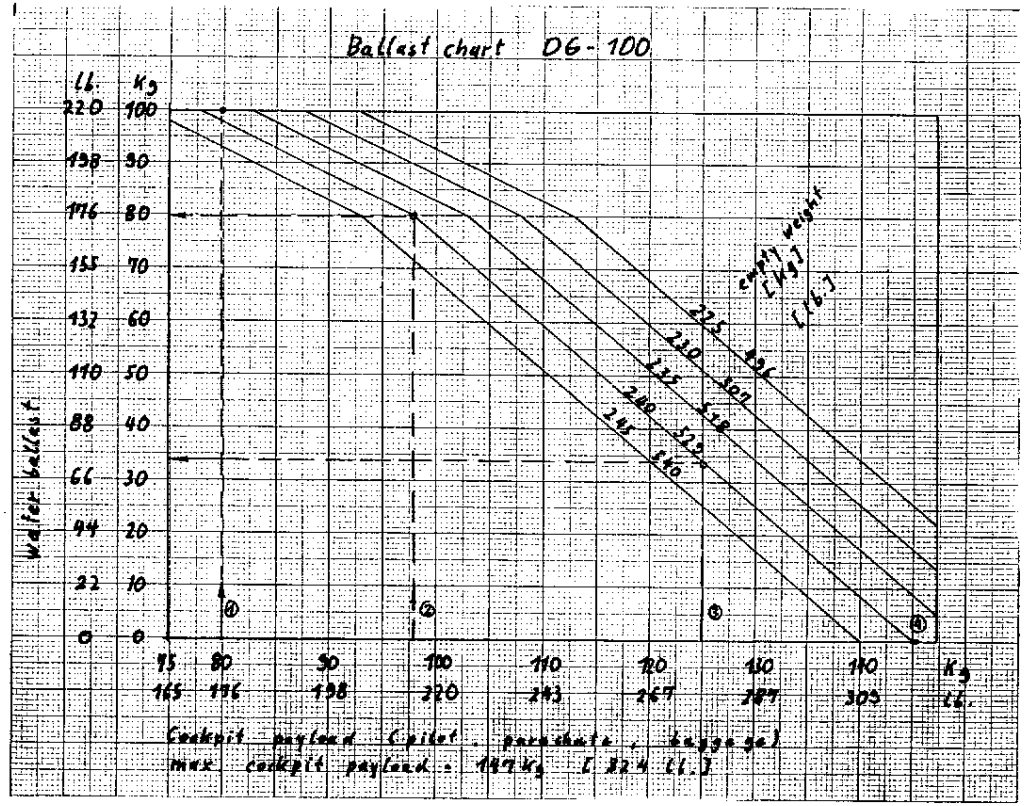
diagram 4

Examples for calculating the water ballast

	kg (lb)	1	2	3	4
Emptyweight (page 21)		235 (518)	24o (529)	24o (529)	24o (529)
Pilot and parachute		75 (165)	9o (198,5)	1o5 (231,6)	115 (253,7)
Baggage		5 (11)	8 (17,6)	2o (44)	3o (66)
Waterballast		1oo (22o)	8o (176,5)	34 (75)	- -
Take off weight		415 (915)	418 (922)	399 (88o)	385 (849)

Max. take off weight without water ballast ——— 385 kg (849 lb)

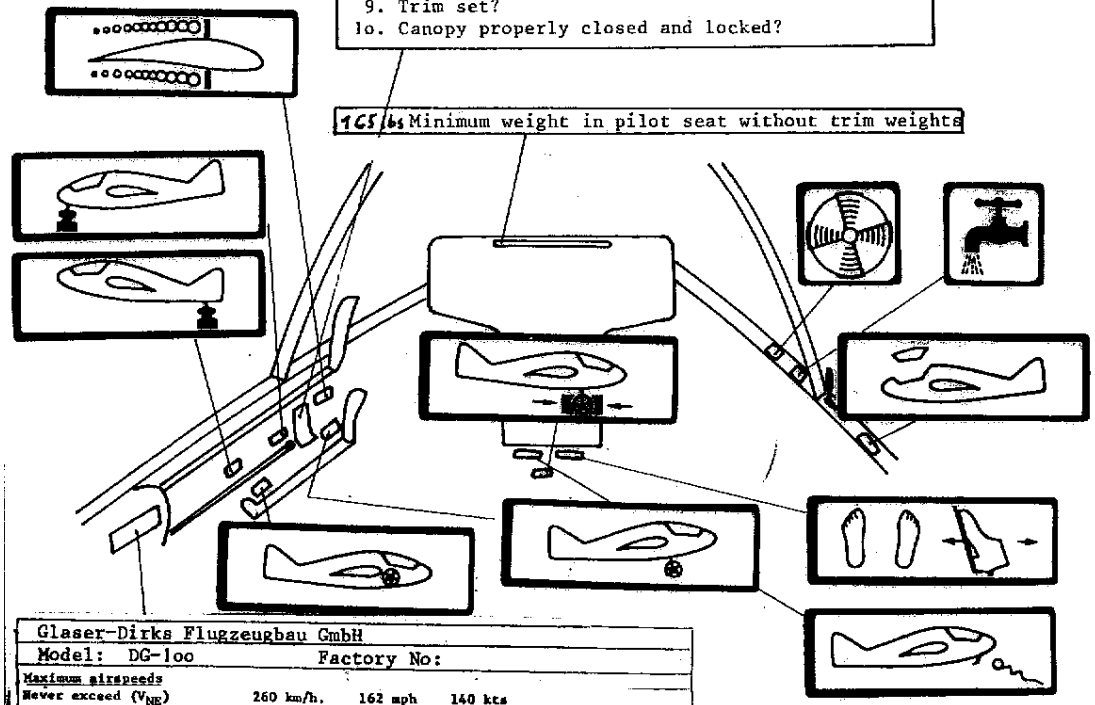
Max. take off weight with minimum 8o kg (176 lb) water ballast ——— 418 kg (922 lb)



Take off check:

1. Trimm weights?
2. Parachute worn correctly?
3. Pilot seat belts and shoulder hornest fastened.
4. Seat back and rudder pedals adjusted?
5. All controls and instruments in easy reach?
6. Altimeter?
7. Spoilers checked for operation and locked?
8. Flight controls tested?
9. Trim set?
1o. Canopy properly closed and locked?

165 lbs Minimum weight in pilot seat without trim weights



Glaser-Dirks Flugzeugbau GmbH

Model: DG-1oo Factory No:

Maximum airspeeds

Never exceed (V_{NE})	260 km/h.	162 mph	140 kts
In rough air (V_B)	260 km/h.	162 mph	140 kts
Maneuvering (V_A)	165 km/h.	1o3 mph	89 kts
On aero-tow (V_T)	165 km/h.	1o3 mph	89 kts
On winch tow (V_W)	13o km/h.	81 mph	7o kts
Landing gear extended	165 km/h.	1o3 mph	89 kts
Spoilers	26o km/h.	162 mph	14o kts

Gross weight 418 kg. (922 lb.) including water ballast.
If the pilot's weight with the parachute is below 75 kg. (165 lb.) ballast weight must be installed in the trim weight holder or in the seat. (See Flight Manual).

Operating Limitations
The sailplane must be operated in compliance with the operating limitations as stated in the form of markings, placards and Flight Manual.

Cloud flying is only permitted when the following instruments are installed: airspeed indicator, altimeter, magnetic compass, turn and slip indicator and variometer.

Approved aerobatic maneuvers

Maneuver	Recommended entry speed
Looping, chandelle, stall turn	17o km/h. 1o6 mph 92 kts
Spin	Use slow deceleration

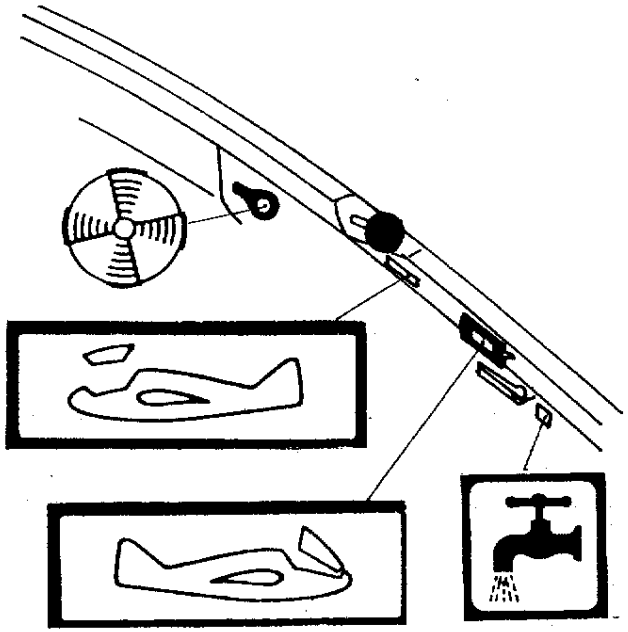
Maximum load factor - at maneuvering speed: +5.3/-2.65
at never exceed speed: +4.0/-1.5

All aerobatic maneuvers including spins must be accomplished in accordance with the approved DG-1oo Flight Manual.

Night flying is prohibited.

Placards on the rear balkhead:
fire proved placard
Serial No. RU
Baggage: max. 66 lbs
on the left gear door
tire pressure 36 p.s.i.
rated load 1oo lbs.
Front surface of main wing spar
Serial No. FL left
" " FR right
Aileron inner main spar surface
Serial No. QL left
" " QR right
stabilizer actuating arm
Serial No. HL
Rudder gusset
Serial No. SR
above the tail wheel 28 ps.i.

Difference in placarting for single piece canopy.



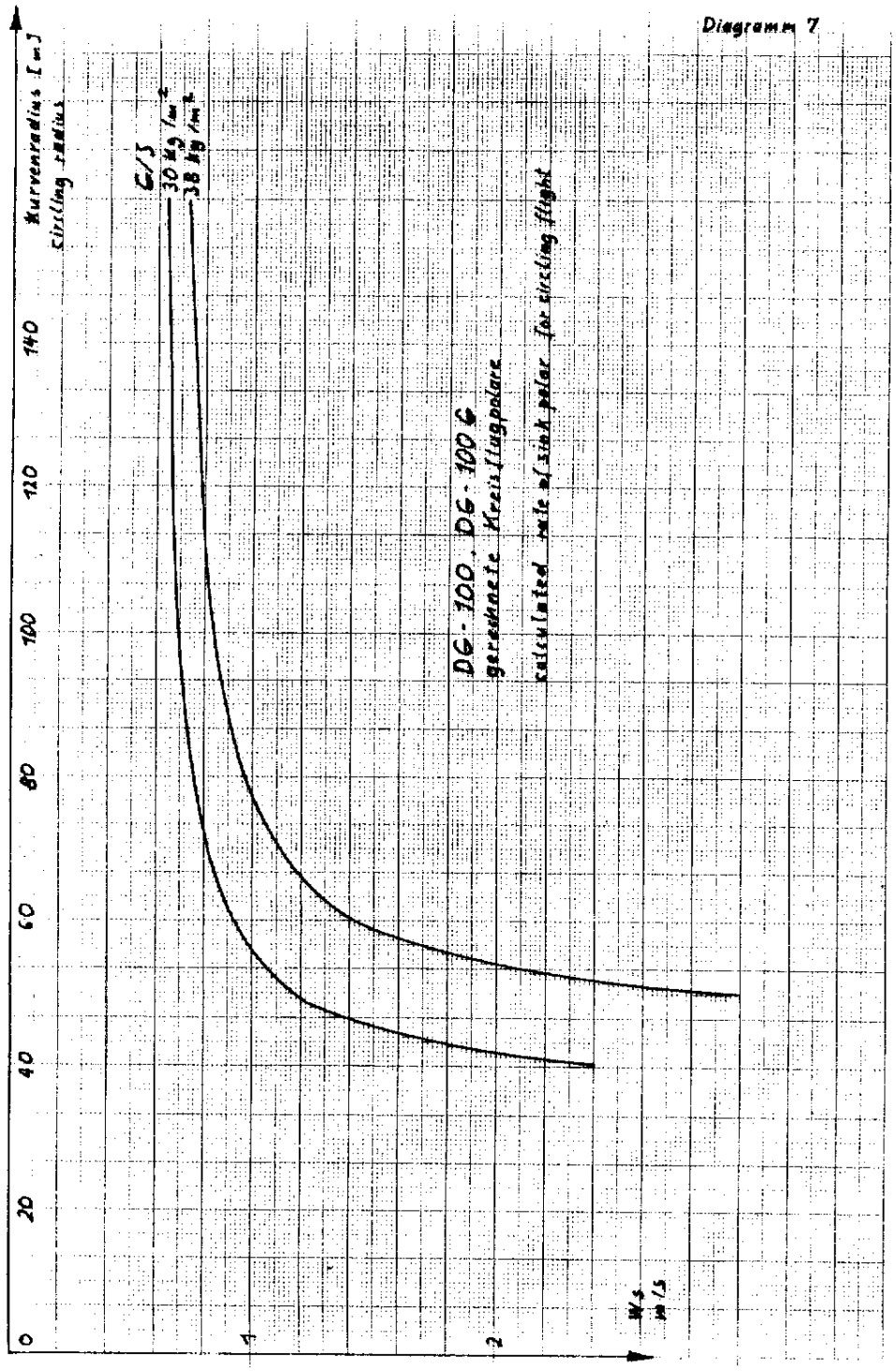
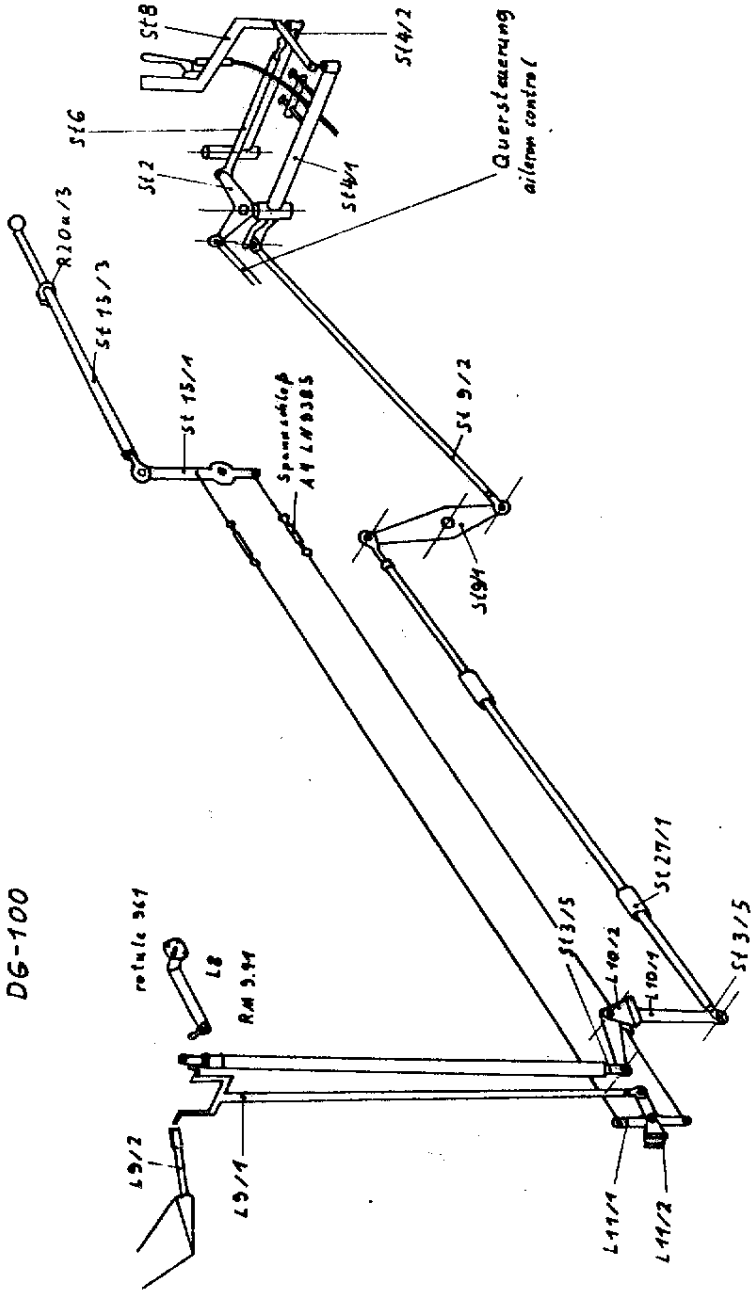
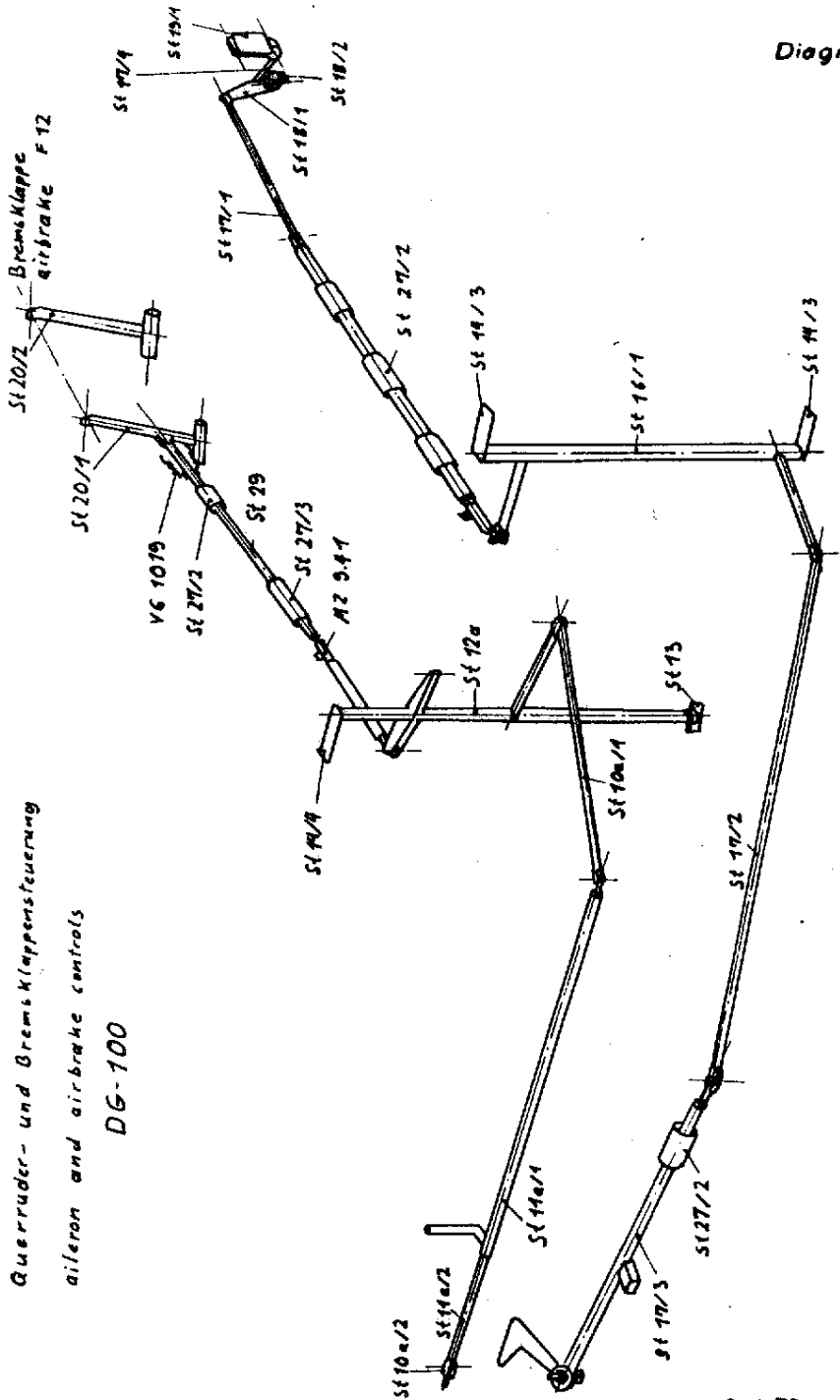


Diagramm 8



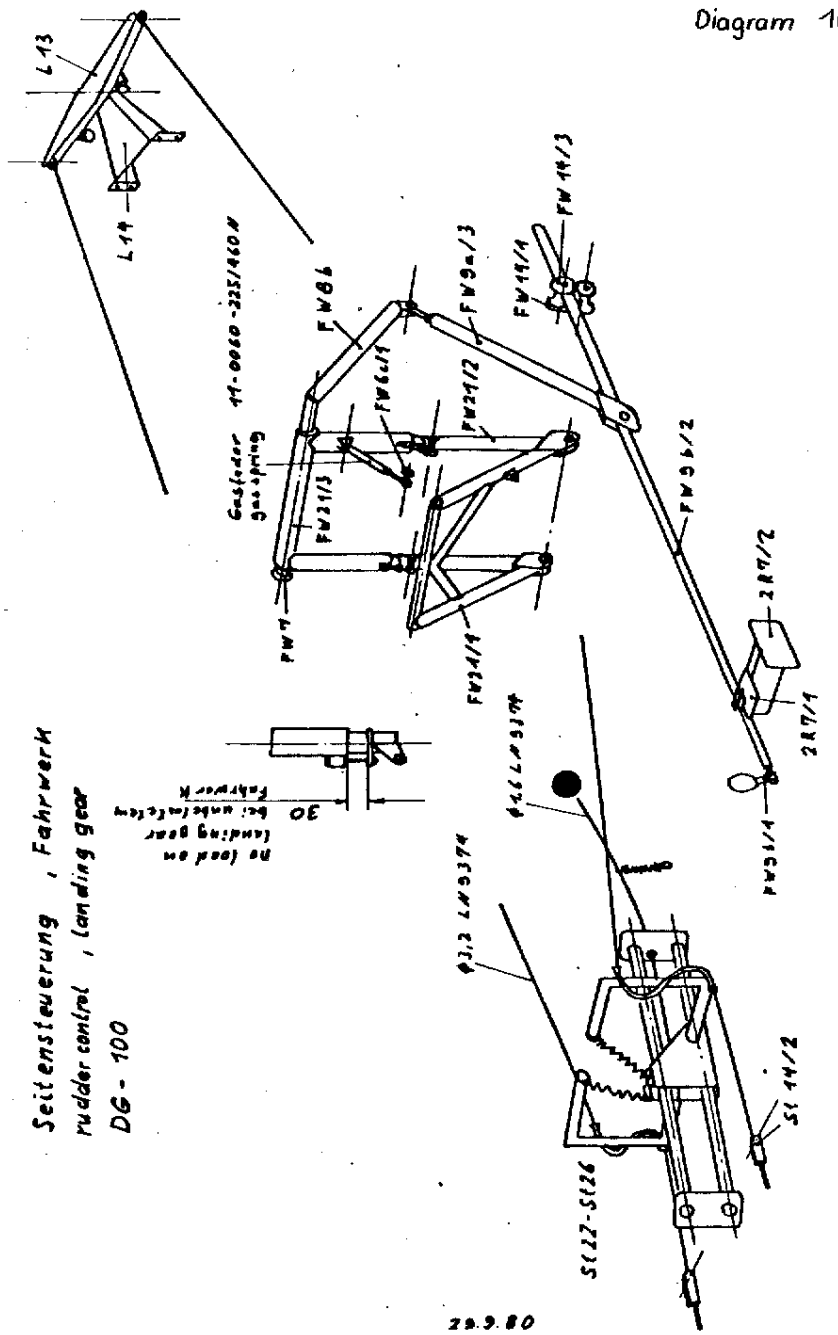
Höhensteuerung
elevator control
DG-100

Diagramm 9



Querruder- und Bremsklappensteuerung
aileron and airbrake controls
DG-100

21.4.78



Glaser-Dirks Flugzeugbau GmbH
Postfach 4120 · D-76625
Tel. 07251 · 89-0 · Fax 8922
D-Gebäude Bruchsal-Untergrombach
LBA-anerkannter Herstellungsbetrieb IB 25
LBA-anerkannter Luftfahrttechnischer Betrieb 278

Technical note
No. 301/17, 323/8, 359/18,
No. 826/31, 348/7, 370/5,
No. 866/4, 384/3, 873/7

Page 1 from 1

SUBJECT : Seat Harness

EFFECTIVITY : DG-gliders and motorgliders
on request

ACCOMPLISHMENT : with installation of new harness

REASON : Some newer types of harnesses are not listet in the maintenance manuals of all DG-types.

INSTRUCTIONS :

1. The following newer types are acceptable for installation: Certification No.
   Gadringer BAGU 5202 G 40.070/32
   " SCHUGU 2700 G 40.071/05
   rubber coated adjuster bars

   Autoflug BAGU FAG-12 D-O 40.070/47
   " SCHUGU FAG-12 H-O 40.071/25

   Schroth 4-01-0 104 40.073/11

   Install the new harness similar to the existing harness.
2. If you install one of these types, file this TN as enclosure into your aircraft maintenance manual.
3. Enter the new harness in the equipment list of your aircraft or write a new equipment list.

REMARKS : The instructions may be executed by the owner.
They are to be inspected and entered in the aircraft logs by a licensed inspector.

Bruchsal 4, date
Jan. 24, 1996

Author: W. Dirks

W. Dirks

LBA - approved:
The German original of this TN has been approved by the LBA under the date of 04. März 1996 and is signed by Mr. Fendt. The translation into English has been done by best knowledge and judgement.

Type certification inspector:

D. Lange